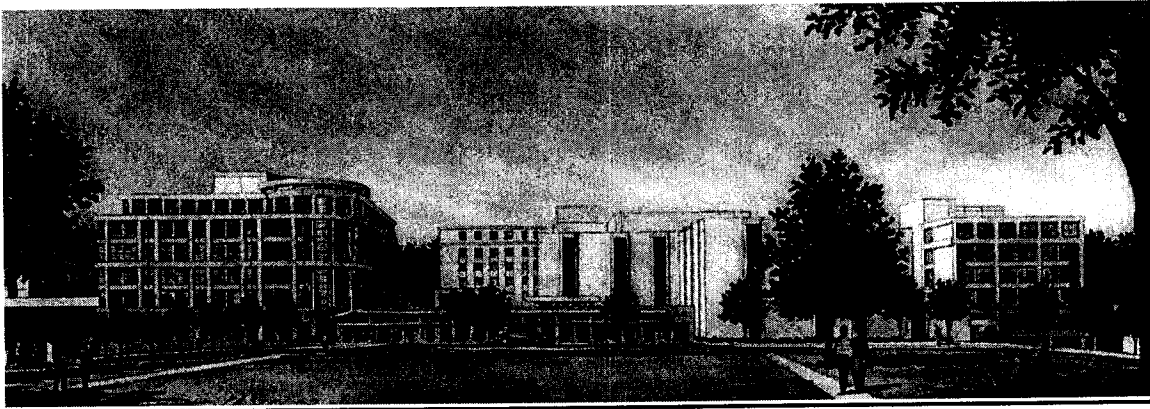


Washington Adventist Hospital

Architectural and Site Design Report

April 2003

DRAFT



Ambulatory Care Facility and Parking Structure

Existing Hospital: Modifications and Additions

Washington Adventist Hospital
Architectural and Site Design Report

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I. Introduction

The following Architectural and Site Design Report has been prepared in conjunction with the filing of Washington Adventist Hospital's (the "Hospital") special exception modification request for the purpose of providing an overview of physical facility development proposals to satisfy the functional requirements of the Hospital needed to address the continuing shift from inpatient to ambulatory care, the shift from semi-private to private in-patient beds, current and future parking needs, and the need of the Hospital to remain economically viable. The proposed improvements to the existing campus of Washington Adventist Hospital are summarized as follows:

- Vertical expansion of the 1990 Bed Tower (above the existing emergency department) consisting of the addition of three (3) floors (Third Floor, Fourth Floor and Fifth Floor) to align and connect with the existing, adjacent hospital building, and allow provision of a greater number of private beds (no new beds proposed). Renovation of existing hospital patient bed rooms, for desired bed uniformity without a significant bed compliment reduction within the existing building envelope, will be performed with the implementation of the facility improvements.
- The existing Emergency Department is being expanded as "in-fill" within the current building structure/footprint, and renovated to incorporate a Fast Track Program, modified Psychiatric Treatment Room area, modified and expanded Walk-in Patient Entrance / Registration / Waiting, and an added Decontamination Room.
- A new ambulatory care facility (ACF), between the Main Hospital and the existing Physicians Office Building will be constructed to add ambulatory service and private physician office capacity. It will also be used for placement of non-clinical functions, thereby reserving more space within the main hospital facility for hospital needs.
- An addition of a new patient / visitor passage link between the ACF and the main entrance to the hospital will include modification of the existing hospital lobby and entrance area, creating an exterior entry plaza. This patient / visitor passage link is envisioned as a "gallery" providing an opportunity for such special display purposes as the hospital's history and/or recognition

of staff, community and patrons. The new passage link will include vertical access (elevator and stair) between the first floor and lower level one for outpatient treatment.

- A parking structure of eight levels (six levels above grade and two levels below grade) will be constructed adjacent and connected to the new ACF. The ACF will also contain two levels of parking beneath, contiguous to the adjacent parking structure, for a total parking capacity of approximately 1070 cars.

Ellerbe Becket conducted meetings and on-site condition observations, and worked in cooperation with WAH staff, consultants and other representatives, to develop alternative concepts to satisfy the stated functional requirements and master plan goals of the hospital. Issues have been reviewed with citizen community groups and local regulatory authorities for guidance of conceptual direction. This interactive process has resulted in the architectural and engineering design proposals with regard to site planning, space plan diagrams, building design, structural expansion, and engineering systems designed to accommodate, as best possible, the concerns expressed.

II. Site Development Proposal

A. General:

The new development proposed for the hospital is intended to add functional space necessary for the hospital to deliver state-of-the-art medical services to the community in an economically viable manner. The modifications involve three (3) programmatic functions: 1) expansion of the emergency department and the hospital bed tower; 2) the new ACF; and 3) the new parking structure.

The design challenge is incorporating these necessary functions into a fairly constrained site in a manner which is operationally efficient and respectful of the surrounding community uses. The proposed improvement plans strike this delicate balance.

1) HISTORICAL ERA / COHESIVENESS:

The history of the hospital, together with its adjacent institutional neighbor, Columbia Union College, goes back more than a hundred years, with a variety of design and planning influences. These influences, which include the Federalist style of Columbia Union College, the early Victorian influence upon smaller/residential scale buildings, and the "streamline" Modern (Art Deco/Nouveau) commercial building influences of the 1920's and 1930's, have been at the core of the design conception.

The proposed design direction recognizes these influences, along with the indigenous context of such building "materials" as fieldstones and limestone panels on such significant buildings as Sligo Adventist Church. To blend these influences into a cohesive solution, we have chosen to develop the new buildings with a human / residential scale "base" of field stone, a building "body" or primary floors with functional openings and limestone panel appearance (refacing existing buildings to match), and a "cap" with some architectural detail.

The goal is to draw appearance relationships from the representative past eras, and the established context of the surrounding commercial and residential structures. The challenge is to design a significant modification to the medical campus that is respectful of its context yet self-

confident in articulating a clear, coherent new design vocabulary that enhances rather than overwhelms the existing facility.

2) SCALE / RELATIONSHIPS:

Major importance has been given to de-emphasizing the scale of the campus perimeter and the "face" to the surrounding residential area, through careful landscaping, internalizing the majority of business activity, and controlling the apparent building size facing the community. As well, the campus planning and building placement has been conceived to reinforce the internal "oval green" shared with Columbia Union College, placing the redeveloped hospital entrance on direct axis with this oval green.

The new hospital entrance is designed in recognition of the importance of direct relationships between patient / visitor / community access and the ability of the hospital and private physicians to provide the highest quality of healthcare. The proposed layout for the new entrance plaza is conceived to provide enhanced safety and protection for patients, visitors and staff. This area is envisioned as a consolidated "front porch" access area detailed at a one-story residential and personal scale. The entrance connection between the hospital and the ACF is designed to incorporate an interior "gallery" for such possible functions as historic displays and other means of recognizing the long standing relationship between the City of Takoma Park and Washington Adventist Hospital.

B. Existing Conditions

The hospital campus is currently improved with the following:

• Hospital Buildings (1950's, 1970's, and 1990's):	359,000 S.F.
• Lisner Building (Medical/Administrative Office):	9,900 S.F.
• 7620 Conference Center Building (Medical Office/Conference):	14,660 S.F.
• 7901 Maple Medical Plaza Building (Medical Office):	13,000 S.F.
• Mechanical Building (adjacent to hospital):	3,600 S.F.
• Power Plant Building:	7,760 S.F.

- Existing Physicians Office Building: 47,166 S.F.
- Parking Deck: 195 Spaces
- Surface Parking (on campus): 534 Spaces

Existing improvements will be impacted by the proposed facility improvements as follows:

- Lisner Building, located in the southeastern portion of the property, will be demolished due to structural failure and to accommodate new parking structure. (Demolition is even without these proposed improvements, due to safety reasons.)
- Existing programmatic functions in the Lisner Building will be redistributed to other existing hospital space.
- The conference center, located adjacent to the existing Physicians Office Building, will be demolished to accommodate a second phase of the new parking structure.
- Existing programmatic functions in the conference center will be located in the following:
 - Physician space to be absorbed in new ACF.
 - Conference facility will be relocated into the ACF as part of the initial phase of development.
- The existing Physicians Office Building shall remain in place.
- The existing Maple Medical Plaza, located along Maple Avenue on the western portion of the property, shall remain in place with no plan for improvements.
- The existing Parking Deck in the western portion of the property shall remain in place with no plan for improvements.
- The existing Power Plant adjacent to the medical facility along Maple Avenue may need to be modified and improved with an approximate 50'-0" expansion to the east for new equipment to provide adequate utility capacity for existing and proposed hospital facilities.
- Existing surface parking and driveways will be re-designed to accommodate new hospital driveway, new ACF, new parking structure, additions and modifications to existing hospital, and power plant expansion.

- The main hospital driveway will be reconfigured to provide better on-site vehicular circulation and to eliminate parking in order to minimize pedestrian conflicts.
- Landscaping will be used throughout the site to create buffer zones, pedestrian walkways and gardens to enhance overall site appearance.

C. Facility Improvements / Additions and Modifications:

The facility improvements for the existing hospital are centered around three (3) programmatic functions:

1) Emergency Department and Bed Tower Expansion

a) EMERGENCY DEPARTMENT

Existing conditions within the emergency department are characterized by the following:

- inadequate support space
- inefficient layout
- no facility means to accommodate specialized programs (fast-track)
- inadequate staff space
- poor location for patient positions (psych. positions, etc)
- lack of privacy at registration
- no capacity for future growth in patient volumes

To address these deficiencies, the Hospital has directed the new design focus for the emergency department to be selective renovation and infill expansion to do the following:

- enhance the function and flexibility of the emergency patient walk-in entrance, registration, and waiting room.
- develop spaces to provide for a Fast Track Program.
- improve the emergency Psychiatric Treatment area.
- re-design the ambulance drop off and entry
- add one decontamination room.

The emergency department improvements will be implemented through multi-phased construction, with the emergency department remaining open 24/7 during the entire construction process.

b) BED TOWER EXPANSION

The existing conditions characterizing the Hospitals in-patient bed capacity are as follows:

- High ratio of semi-private to private rooms.
- 1950's building is not suitable for renovation or expansion.
- 1990's building is designed for vertical expansion-ideal for a new bed tower.

The proposed vertical expansion directly above the existing 1990's building will include the addition of three (3) floors. This expansion will allow an increase in the overall number of private rooms in the facility, and reduce the existing number of semi-private rooms. This improvement will simply modify bed distribution, not increase the overall current total of 322 beds in the facility.

This improvement will also allow a consolidation of all the critical patients to the 1950's building, thereby creating an "ICU Tower" and allowing the older buildings to be converted to medical surgical units with private beds. The expansion will provide a bed unit on each floor, with unit functions to be determined. The shift from semi-private to private rooms will address the following: 1) Obstetrics: In room infant care, privacy and consumer demand in response to competition; 2) separation of male and female patients (bed utilization efficiency); 3) infection control; and 4) patient preference.

The patient rooms are based on existing room configuration, but subject to change during the design development process.

2) **ACF and Modified Main Hospital Entrance and Link to ACF**

a) The new and expanded main entrance and connection between the hospital and the new ACF will incorporate the following:

- patient / visitor passage link between the ACF and the main entrance to the hospital
- modification of the existing hospital lobby and entrance area, creating an exterior entry plaza for patient drop-off / pick-up under an extended protective canopy.
- “gallery” to provide an opportunity for special display of the hospital’s history and/or recognition of staff, community and patrons.
- vertical access (elevator and stair) between the first floor and lower level one for more immediate connection of outpatient, ambulatory care and treatment provided in the hospital and the new ACF.

b) **Ambulatory Care Facility**

The proposed new ACF will be developed to provide room for both clinical space (hospital) and physician space (office). The building placement adjacent to the existing hospital, east of the main entry, allows for direct patient, staff and physician access to the hospital through a horizontal public passage link between the first floor level of the ACF and the first floor level of the hospital. The first floor of the ACF is level with the first floor of the existing hospital.

The ACF building has been designed to match the six (6) story height of the existing adjacent hospital 1950’s building, with two (2) levels of below grade parking under the first floor level. The building is a Business Occupancy under the applicable code, IBC 2000, with no inpatient beds (present or future). There are no design provisions for future vertical expansion.

A pathway/connection from the below grade parking under the ACF, will provide access between ACF and the existing Physicians Office Building for physicians and staff.

Specific medical equipment may require on-grade conditions, consequently current space planning of clinical service locations has identified appropriate space at the lowest ACF level. A new rooftop mechanical penthouse and elevator equipment room will serve the space conditioning and vertical transportation needs of the ACF.

Facility Improvements / Additions and Modifications

AREA CALCULATION SUMMARY (GSF) (2)

	Existing	New Const.	Renovation
Emergency Department	9,200	5,500 (3)	2,500
Bed Tower Expansion	(1)	36,000 (4)	NA
Main Entrance / Link	NA	6,500	300
Ambulatory Care Facility	NA	144,000	NA

NOTES:

- (1) Lower Level 2 to 2nd Floor Existing
- (2) GSF = Gross Square Footage
- (3) In-Fill Construction at Existing Lower Level 1.
- (4) Vertical Expansion to connect to Existing 3rd, 4th, and 5th Floors.

3) Parking Structure

The parking requirements relating to overall campus existing and proposed improvements are identified in the Parking Report prepared by Wells and Associates. The proposed new parking structure has been designed to accommodate the necessary parking spaces to satisfy parking needs.

This new parking structure has been located to provide a direct and enclosed connection to the new ACF and to the existing hospital. The proximity of the parking structure to the existing

Physicians Office Building allows for immediate access between the new parking structure and the existing main entrance to the existing Physicians Office Building.

The plan proposes the new parking structure be strategically located at the rear, Sligo Creek side, of the property behind the proposed ACF and existing Physicians Office Building, shielding much of the structure from public view. Vehicular access to the parking structure is offered from two locations off of the hospital entry drive, with entry and exit to/from two different parking levels.

The new parking structure layout will allow an appropriate mix of assignment of spaces by controlled access areas:

- 42 Spaces--Physicians (Requiring 2 HDCP as per ADA)
- 50 Spaces--MOB Employees (Requiring 2 HDCP as per ADA)
- 200 Spaces--Hospital Employees (Requiring 16 HDCP as per ADA)
- 778 Spaces—Patient /Public (Requiring 16 HDCP as per ADA)
- 1070 Spaces Total (Requiring 26 HDCP as per ADA)

D. Access and Circulation:

1) New Entrances:

As stated above, the plan proposes redevelopment of the main hospital entrance to combine the front hospital entrance and the ACF entrance in one central entry plaza. The entry plaza improvements will include a vehicular drop-off loop with a continuous canopy covering and a shared pedestrian plaza space.

At the existing emergency department entrance area, the plan proposes a new emergency department ambulance entrance and walk-in entrance that untangles what is now a mix of emergency walk-in / drop-off, ambulance drop-off, and parking garage access. The new walk-in entrance will be clearly visible with a distinct design element that will enable visitors to readily

identify the emergency department access. Clear separation of circulation functions will provide a safer more efficient flow of traffic for vehicles and pedestrians.

2) **Entry Drive:**

The existing surface parking that currently borders the entry drive will be removed and replaced with trees, lawns, and under story plantings. The improvements will transform what now looks like a parking lot into a tree-lined driveway, complimenting the campus green of Columbia Union College. The new drive has been designed with a soft serpentine alignment. From Carroll Avenue the drive begins straight and on axis with the Columbia Union College Science Building. As it rises to the crest of the hill, the alignment subtly arcs towards the main hospital entrance, and then reverses alignment by arcing away from the hospital as it nears the Emergency Entrance.

3) **Carroll Avenue Parking Lot:**

The existing surface parking lot located along Carroll Avenue will be significantly reduced in size and much of the existing paved surface will be replaced with a variety of shade trees, evergreen trees, and under story plantings that will soften the space and screen public view of the existing Physicians Office Building, and the proposed parking structure.

4) **Pedestrian Circulation:**

Pedestrian circulation, including links to adjacent neighborhoods and to Columbia Union College, will be dramatically improved. A tree-lined primary pedestrian spine is proposed along the entry drive that will connect Carroll Avenue public sidewalks and the existing Carroll Avenue bus shelter to hospital facilities and Columbia Union College campus pathways. Secondary walkways link the pedestrian spine with the existing Physicians Office Building, the proposed ACF, the proposed parking structure, and the existing parking deck.

E. Landscaping and Lighting:

1) Site Plantings and Buffering:

An aggressive tree planting program is proposed for the site including installation of more than 230 new trees that will offer shade, provide screening of structures from public view, and soften the overall campus character. Tree species shall consist of native, non-invasive selections that are in character with existing plantings of Columbia Union College and adjacent neighborhoods of Takoma Park. Great care shall be taken to preserve existing trees, where possible, with emphasis placed on protecting the existing oak tree grove located on the college campus adjacent to the proposed new entry drive and the existing forested areas located behind the hospital at Sligo Creek.

2) Site Lighting:

a) Purpose

The purpose for the site lighting analysis for the Master Plan of Washington Adventist Hospital is to provide documentation of the location and lighting levels of the existing site lighting, and to provide documentation of the location and lighting levels of the proposed implementation of the new site design. In addition, it is important to ensure that adequate site lighting exists to provide a safe and secure environment for the entire hospital campus, and to verify conformance with design criteria established by industry standards and regulations of Montgomery County, Maryland, while minimizing the impact such lighting may have on the surrounding communities.

b) Design Criteria

The lighting design criteria for this site is as recommended by Illuminating Engineering Society of North America, IESNA and Montgomery County Zoning Ordinance Chapter 59.

The IESNA recommended Illuminance Levels for Pedestrian Ways and Roadways:

- Side walks Commercial areas 1fc
- Side walks Intermediate areas 0.6fc
- Side walks Residential areas 0.2fc

- Roadway Entrance and Exit 0.3fc to 0.6fc
- Roadway Interior 0.6fc
- Parking Areas 0.6fc to 1fc
- Activity Areas 0.5fc to 1fc

c) Existing Site Lighting System

The existing site lighting at the facility is provided by High Pressure Sodium (HPS) type fixtures. Enclosed is a chart indicating the quantity and type of fixtures. The Cobra head is an industrial type that is primarily used at the entrance and rear roadways of the facility. The trade name “shoe-box” fixture is a sharp cut off fixture used at the surface parking areas and pedestrian ways. Included in this report are two site plans showing the existing lighting levels provided by these fixtures.

d) Proposed/New Site Lighting System

The proposed lighting system is an attempt to provide a cost effective solution while providing a more pedestrian promenade entrance into the hospital and to compliment the scale of the residential environment adjacent to the facility. This is accomplished by replacing the taller industrial cobra heads at the hospital’s entrance with a more residential scale Juno fixture. Although the Juno fixture has a 360 degree throw, a shield will be placed to focus the lighting where needed on the roadways and reduce the glare from adjacent structures. The sharp cutoff “shoe-box” type fixtures will be used again on surface parking areas and on top of the new parking structure. Included in this report are two site plans and a chart showing the new lighting layout. To save costs most of the existing fixtures at the rear and western portions of the hospital site will remain as presently installed and functioning.

e) Parking Garage Lighting

The new parking garage lighting will be provided with High-Pressure Sodium fixtures. These fixtures will be sharp cutoff type fixtures with a modified Type V distribution. The modified Type V

distribution provides even illumination at corners between fixtures so the lighting is uniform but, more importantly, provides a sharp cutoff above 75 degrees. This will minimize internal glare for drivers and reduce the amount of light leakage external to the parking structure.

F. Signage:

With the proposed facility modifications and additions, the hospital campus and building identification, and directional “wayfinding” signage will be updated for the new ACF, Emergency Department access, hospital main entrance, and parking access. All site signage will be designed in compliance with applicable codes and regulations, and with respect for the surrounding residential environment.

The signage design will be site mounted at a low, pedestrian height and will compliment the campus design character. Signage lighting will be at minimum intensity levels, with provisions to control glare and minimize lighting visible to surrounding residential neighbors.

III. Infrastructure and Physical Plant (As Necessary)

A. Mechanical

1) Infrastructure

The facility mechanical system design includes potential modifications of the mechanical systems in the central plant. An analysis will be made to determine how the existing cooling plant serving the existing hospital will be renovated/expanded and new equipment provided in order to serve the modifications to the existing hospital and hospital additions. The existing heating plant is reported to have adequate capacity to serve the hospital expansion. It needs to be confirmed during SD phase that the required JCAHO redundancies for critical loads will be met with the existing boilers. However, preliminary indications are that they can be met.

The central plant building and structure may have to be modified as discussed in the architectural narrative. If required, the new mechanical equipment provided will be housed in the addition to the central plant. The roof of the addition will support mechanical equipment required for heat rejection as noted below.

The proposed modifications and additions may require a new chiller, additional pumps, piping and a new cooling tower on the roof of the central plant building to accommodate the increased hospital loads. If required, the new cooling tower would be provided on the addition roof to serve the added chiller. A new dual-cell-cooling tower will be provided to replace the existing dual-cell-cooling tower serving the existing chillers. The cooling tower(s) and associated piping and utilities (electrical, freeze protection, chemical treatment, emergency power, etc.) will be provided. This equipment will then be tied into the existing system to provide condenser water to the existing two main chillers. The existing 30-year old dual-cell-cooling tower located on the roof of the existing central plant, which is past its useful life, will then be demolished.

An analysis will be done to determine the usefulness (size and age) of the distribution chilled water supply and return piping from the central plant to the hospital. If required due to additional chilled water demand, new chilled water supply and return piping will be provided to serve the hospital addition and will backfeed existing hospital mains, prior to removal/abandon of the existing mains. An analysis will also evaluate the ability of the existing pumps to provide enough pressure for the air handler coils. If found to be inadequate, they will be replaced/modified.

2) Hospital: Modifications and Additions

The mechanical system design includes providing connections to the incoming chilled water piping from the central plant. If it is determined that new piping will be run from the central plant to the hospital additions, these will be routed into the building and extended for the additions. Heating will be provided by a steam pressure reducing station and steam to hot water convertor(s), which will generate heating water. The cooling and heating water will be distributed throughout the building using risers and horizontal piping systems to air handlers. The air handlers, some variable air volume and some constant volume based on the use of the space, will supply and return air to and from the spaces. Outside air will be introduced at the air handlers. Airside economizers will be provided.

The proposed hospital mechanical systems will incorporate the following provisions:

- Quantity and location of air handling units will be determined by the use of the space they serve and architectural and structural concerns.
- Exhaust will be provided for the required spaces.
- It is anticipated that domestic hot water will be provided via steam fired hot water generators.
- Medical air, medical vacuum and other medical gasses will be provided per space program requirements.
- The hospital additions will be fully sprinklered. Pre-action system(s) will be provided for electronic-intensive spaces.

- A building automation system (BAS) will be provided for control of mechanical and plumbing/fire protection systems. The BAS will be interconnected with the fire alarm system.

3) Ambulatory Care Facility and Parking Structure

The mechanical system design includes a new stand-alone cooling and heating plant. The new plant will be located in the lower level of the ACF/Parking Structure, for equipment access consideration. Based on the functional space descriptions provided in the space program, it is anticipated that electric centrifugal chiller(s) and induced draft cross-flow cooling tower(s) will be provided to generate chilled water. The cooling towers will be located on the roof, adjacent to the Mechanical Equipment Penthouse, within a perimeter, louvered screen wall enclosure. Cooling water will be routed up through the building to the Mechanical Equipment Penthouse AHUs. As an alternative to the water-cooled chiller/cooling tower combination, roof-mounted air-cooled chillers will be considered. The use of air-cooled chillers will save on mechanical equipment space and piping required (since they would be located adjacent to the AHUs). However, relative equipment efficiencies and costs will be considered, and the decision evaluated further, before the final decision is made. It is anticipated that heating will be provided by direct gas fired modular boiler(s), which will generate heating water. Flue breeching and stack will be routed up through the building and will terminate above the roof. Location of the boilers in a separate room within the Mechanical Equipment Penthouse, in lieu of a basement, will be considered in order to save on flue costs, pending penthouse space constraints. Heating water will be routed throughout the building using pump(s), risers and horizontal piping systems, to serve the air terminal unit heating coils the AHU preheat coils. It is anticipated that a minimum of two (2) equally sized air handling units (AHUs) will be headered together for redundancy. AHUs will be located in the Mechanical Equipment Penthouse. Centrally locating the AHUs will save programmed space and reduce equipment noise on each floor. These variable volume air handling units, serving variable volume air terminal units and constant volume air terminal units based on the use of the space, will supply and return air to and from the occupied spaces. Outside air will be introduced at the air handlers. Airside economizers will be provided. Other

alternatives had also been considered. These alternatives, and the reasons they were ruled out, are as follows:

- Serve the ACF, in addition to the hospital expansion, from an expanded hospital central plant: This option would require a larger expanded footprint for the central plant than would be required to satisfy the needs of the hospital alone, on a site that is already a tight fit. The added footprint that would be required to meet the cooling needs alone may be feasible but would be subject to further development. However, expansion for both heating and cooling provisions for the hospital expansion and ACF is physically prohibitive. (The existing heating plant is adequate to serve the needs of the hospital alone including the hospital expansion.) Expansion of the central plant to provide cooling needs for the ACF would link the cooling production (hospital-controlled) with the customer (ACF) demand and would require a customer / service-provider agreement be negotiated. The ACF would be dependent on the hospital for its cooling capability, generally not as desirable a situation as the stakeholders having direct control themselves. Pipe routing, from the expanded central plant to the ACF, would likely be cost prohibitive and would cause significant disruption to the main entry drive.
- Serve the ACF with self-contained type of refrigeration equipment (water-cooled floor-by-floor units or roof mounted self-contained units) in lieu of chilled water refrigeration equipment / associated air handling units. The programmed space consists of approximately 50% clinical space / 50% doctors' office space. The high percentage of clinical spaces does not lend itself to use of "standard" office-type HVAC equipment. The clinical spaces will likely require higher percentages of outside air, better filtration, and better humidity control than "standard" office-type HVAC equipment can provide.

The proposed ACF / parking structure mechanical systems will incorporate the following provisions:

- Exhaust will be provided for the required spaces.
- A refrigerant purge system will be provided for the chiller room (does not apply to the air-cooled chiller option).
- The below grade areas of the parking structure will be ventilated and exhausted per the applicable codes. A minimum of 1.5 cfm per square foot exhaust will be provided for below-grade areas whose perimeter is less than 50% open to the outside air. Makeup air for the parking structure exhaust system will be provided via openings/louvers or areaways/louvers to the outside air. An exhaust fan room, with exhaust fan at each major level, will be provided to discharge air into an exhaust areaway toward the backside of the parking structure. Carbon monoxide sensors will be provided to control the parking structure ventilation system.
- It is anticipated that domestic hot water will be provided via gas fired hot water generators. It is anticipated that the water heaters will be located in the same Mechanical Equipment Room that houses the heating water boilers.
- Medical air, medical vacuum and other medical gasses will be provided per space program requirements. If required, units will be located in the lower level Mechanical Equipment Room in the ACF/Parking Structure.
- The new building will be fully sprinklered. A dry pipe system will be provided for the parking structure. Pre-action system(s) will be provided for electronic-intensive spaces. The need for a fire pump will be evaluated once recent flow test information is available. If required, the fire pump will be located in the lower level Mechanical Equipment Room in the ACF/Parking Structure.
- A building automation system (BAS) will be provided for control of mechanical and plumbing/fire protection systems. The BAS will be interconnected with the fire alarm system.

B. Electrical

1) Infrastructure

The facility electrical system design includes modifications of the electrical services to the central plant. An analysis will be made to determine if the existing primary switchgear serving the central plant can be expanded to serve the modifications to the central plant and hospital additions or a separate service is required from the Power Company.

The modifications will require new single or dual transformers for normal power to accommodate the increased mechanical loads. Electrical service provides 480/277 volts to major mechanical equipment, building equipment (i.e., elevators) and fluorescent HID lighting. Dry type transformers provide 208/120 volts for small load mechanical and building equipment, receptacles and 120-volt lighting.

Emergency power will be obtained from the emergency system to meet Life Safety and specialty equipment requirements. An analysis will be made to determine if the existing emergency generator in the central plant can be replaced and reconfigured with additional capacity to provide service to the new additions and existing hospital or whether a stand alone generator will need to be installed to accommodate the addition.

Lighting systems are mainly fluorescent and high intensity discharge (HID) to conserve energy and reduce maintenance. Fluorescent fixture ballasts are electronic types.

Telecommunications will be provided to allow interconnection to the existing hospital system. The existing campus system will be engineered to accommodate the new addition requirements.

Security and fire alarm systems shall be provided.

2) Hospital: Modifications and Additions

The facility electrical system design includes new utility electrical services from the power plant. An analysis will be made to determine if the existing primary switchgear serving the hospital can be expanded to serve the addition or if a separate service is required from the Power Company.

The additions will require a new single or double-ended substation for normal power. Electrical service provides 480/277 volts to major mechanical equipment, building equipment (i.e., elevators) and fluorescent HID lighting. Dry type transformers provide 208/120 volts for small load mechanical and building equipment, receptacles and 120-volt lighting.

Emergency power will be obtained from the emergency system to meet Life Safety and specialty equipment requirements. An analysis will be made to determine if the existing emergency generator in the central plant can be replaced and reconfigured with additional capacity to provide service to the new additions and existing hospital, or whether a stand alone generator is necessary to accommodate the addition.

Lighting systems are mainly fluorescent and high intensity discharge (HID) to conserve energy and reduce maintenance. Fluorescent fixture ballasts are electronic types.

Telecommunications will be provided to allow interconnection to the existing hospital system. The existing campus system will be engineered to accommodate the new addition requirements.

Security and fire alarm systems shall be provided.

3) Ambulatory Care Facility and Parking Structure

The facility electrical system design includes new utility electrical services from the Power Company. An exterior pad mounted transformer 1500-2000Kva will provide service to the facility. The existing primary electrical service in the vicinity of the New ACF and Parking Structure will be evaluated for expansion, relocation, or maintained. Electrical service provides 480/277 volts to major mechanical equipment, building equipment (i.e., elevators) and fluorescent HID lighting. Dry type transformers provide 208/120 volts for small load mechanical and building equipment, receptacles and 120-volt lighting.

Emergency power will be obtained from a new emergency generator to meet Life Safety and specialty equipment requirements.

Lighting systems are mainly fluorescent and high intensity discharge (HID) to conserve energy and reduce maintenance. Fluorescent fixture ballasts are electronic types.

Telecommunications will be provided to allow interconnection to existing hospital system and service from a local provider. The existing campus system will be engineered to maintain service to existing Physicians Office Building.

Security and fire alarm systems shall be provided.

IV. Conclusion

This Report has outlined the specific development proposals of Washington Adventist Hospital to satisfy functional space requirements necessary to deliver state-of-the-art medical services to the community. To remain economically viable, Washington Adventist Hospital must address community healthcare demands for ambulatory care, private in-patient beds, emergency and indigent care, and convenient and safe access and parking. The Hospital is proposing to meet these needs as follows:

- The Hospital proposes to improve the current haphazard on-street parking and access situation and eliminate current on-site pedestrian and vehicular conflicts by developing an internalized campus parking structure, eliminating all parking along campus drives, and providing landscaped walkways and paths. The main hospital entrance and emergency department entrance will also be expanded and simplified for easy and safe access.
- The Hospital proposes the addition of an Ambulatory Care Facility (ACF), which is essential to the economic viability of Washington Adventist Hospital. The healthcare services to be housed in this facility mandate that it be located directly adjacent to the hospital to efficiently provide the care essential to the health of each individual patient. The immediate proximity of the ACF with the Hospital also enables patients and physicians to remain on the site, without the need to drive to and from points off site.
- The Hospital proposes to address Emergency Department deficiencies through enhancements to emergency patient entrance, registration and waiting areas, the integration of a Fast Track Program of treatment, improvements to the Psychiatric Treatment area, and with the redesign of the ambulance drop-off and decontamination services.

- Finally, the Hospital intends to shift many of the in-patient bed rooms from existing semiprivate layouts to private rooms, through the redistribution of current beds into new in-patient room areas within a vertical expansion of the 1990 Bed Tower, and the renovation of existing semiprivate rooms within existing in-patient room areas.

The development proposed for Washington Adventist Hospital described in detail above, is being designed and planned to strike a balance between functional space provisions essential to the continued operation of the Hospital, and respect for the surrounding community. The building design goal is to draw appearance relationships from the history of the hospital, the surrounding neighbors, and the City of Takoma Park that will enhance the existing facility and community. Washington Adventist Hospital can successfully achieve this balance through the cohesive design of its improvements, the proposed consolidated and simplified master plan for patient access, the new “front porch” to the community and “gallery” to history, and its commitment to continue to provide state-of-the-art medical services to the community.